

REMARKS

Claims 1-18, 27, and 42-50 are pending, and new claims 51-61 have been added. By this amendment, claims 19-26 and 28-41 have been canceled without prejudice or disclaimer. Claims 3, 6-8, and 27 have been withdrawn. Applicants reserve the right to pursue the canceled or withdrawn claims in a divisional or continuation application(s).

Applicants have amended claim 1 to recite “wherein said surface comprises a coating of an amine-presenting molecule, and said biological membranes are deposited directly to said coating.” This amendment is supported at least by paragraphs 13, 42, and 45 of the specification.

Applicants have also amended claims 42 and 49 to recite “wherein said surface comprises a coating of an amine-presenting molecule, and each of said biological membrane microspots comprises a biological membrane directly deposited to said coating.” These amendments are supported at least by paragraphs 13, 42, and 45 of the specification.

In addition, Applicants have amended claims 1, 42, 49, and 50 to replace the term “having” with “comprising.” Applicants respectfully submit that this amendment is purely cosmetic.

Applicants have added new claims 51-61. Claims 51, 53, and 55 are supported at least by original claims 19 and 25. Claims 52, 54, and 56 are supported at least by original claims 19 and 26. Claims 57, 58 and 60 are supported at least by original claims 1, 42, and 49 and by paragraphs 13, 42, and 45 of the specification. Claims 59 and 61 are supported at least by original claims 23, 25, and 26. All of the new claims are readable upon “carbohydrate” as elected in the Amendment and Reply to Restriction Requirement filed January 26, 2005.

Applicants respectfully submit that the amendments to the claims and the addition of the new claims do not introduce new matter. Entry of the amendments and the new claims is therefore respectfully requested.

Election/Restriction

On page 2, the Office Action deems the election/restriction requirement proper. Applicants respectfully disagree with the election/restriction requirement for the reasons set forth in the Amendment and Reply to Restriction Requirement filed January 26, 2005. Applicants reserve the right to petition the election/restriction requirement to the

Commissioner under 37 C.F.R. §1.181. Applicants also reserve the right to pursue the withdrawn claims in a divisional or continuation application(s).

Claim Rejections Under 35 U.S.C. §102(e)

On pages 2-4, the Office Action rejects claims 1, 2, 4, 12, 13, 16-24, 42, 43-46, 47, and 49 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,790,632 (hereinafter “Zweig”). Applicants respectfully traverse the rejection.

Applicants have amended claim 1 to recite “wherein said surface comprises a coating of an amine-presenting molecule, and said biological membranes are deposited directly to said coating.” Zweig neither teaches nor suggests deposition of biological membranes directly to a coating of an amine-presenting molecule. Accordingly, Applicants respectfully submit that Zweig does not anticipate claim 1 of the present application.

Zweig describes the use of antibodies or other specific ligand-binding molecules to non-covalently anchor lipid membranes to a surface. For instance, in column 19, lines 5-30, Zweig describes covalent binding of bovine serum albumin (BSA) to silane treated glass slides. The lysine, aspartate, and glutamate residues of the bound BSA are then activated to allow reaction with IgG or streptavidin. Lipid membranes are subsequently bound to these immobilized IgG or streptavidin molecules. As a consequence, the lipid membranes employed in Zweig are not directly deposited to a coating of silane or amine-presenting molecules.

In contrast, the method recited in claim 1 employs a biological membrane which is directly deposited to an amine-coated surface. As described in paragraphs 41 and 42 of the present application, this direct deposition may increase the surface resistance to physical desorption and improve the membrane’s long-range lateral fluidity.

Based on the above reasons, Applicants respectfully submit that Zweig does not teach or suggest each and every element of claim 1. Accordingly, Zweig neither teaches nor renders obvious claim 1. Because claims 4, 12, 13, and 16-24 depend from patentable claim 1, Applicants respectfully submit that Zweig neither teaches nor renders obvious these claims either.

Applicants have also amended claims 42 and 49 to recite “wherein said surface comprises a coating of an amine-presenting molecule, and each of said biological membrane microspots comprises a biological membrane directly deposited to said coating.” As noted above, Zweig neither teaches nor suggests deposition of biological membranes directly to a

coating of amine-presenting molecules. Accordingly, Applicants respectfully submit that Zweig neither teaches nor renders obvious claims 42 and 49.

Because claims 43-46 and 47 depend from patentable claim 42, Applicants respectfully submit that Zweig neither teaches nor renders obvious these claims either.

Based on all of the above reasons, Applicants respectfully submit that claims 1, 2, 4, 12, 13, 16-24, 42, 43-46, 47, and 49 are patentable over Zweig under 35 U.S.C. §102(e). Reconsideration and withdrawal of the §102(e) rejection of these claims are, therefore, respectfully requested.

Claim Rejections Under 35 U.S.C. §102(e)

On pages 4-6, the Office Action rejects claims 1, 2, 4-5, 9-12, 14-15, 19-20, and 42-50 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,699,719 (hereinafter “Yamazaki”). Applicants respectfully traverse the rejection.

As noted, Applicants have amended claims 1, 42 and 49 to recite that the biological membranes are directly deposited to a coating of an amine-presenting molecule. Like Zweig, Yamazaki neither teaches nor suggests deposition of biological membranes directly to such a coating.

Yamazaki describes a detector array comprising a substrate having a surface which defines a plurality of distinct bilayer-compatible surface regions separated by one or more bilayer barrier regions. In column 18, lines 20-29, Yamazaki describes the use of a thin polymer film (e.g., polyacrylamide or dextran) to enhance bilayer attachment. The thin polymer film can be coupled to an array surface using 3-methacryl-oxypropyl-trimethoxy-silane. However, Yamazaki neither teaches nor suggests deposition of biological membranes directly to the coating of 3-methacryl-oxypropyl-trimethoxy-silane. Therefore, Yamazaki does not teach or suggest each and every element of claims 1, 42, or 49. Accordingly, Applicants respectfully submit that Yamazaki neither teaches nor render obvious claims 1, 42, and 49 of the present application.

Because claims 2, 4-5, 9-12, 14-15, and 19-20 depend from patentable claim 1, claims 43-48 depend from patentable claims 42, and claim 50 depends from patentable claim 49, Applicants respectfully submit that Yamazaki neither teaches nor renders obvious claims 2, 4-5, 9-12, 14-15, 19-20, 43-48, and 50 either.

Based on all of the above reasons, Applicants respectfully submit that claims 1, 2, 4-5, 9-12, 14-15, 19-20, and 42-50 are patentable over Yamazaki under 35 U.S.C. §102(e).

Reconsideration and withdrawal of the §102(e) rejection of these claims are, therefore, respectfully requested.

Claim Rejections Under 35 U.S.C. §103(a)

On pages 6-7, the Office Action rejects claim 25 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,790,632 (“Zweig”) in view of U.S. Patent No. 4,993,285 (hereinafter “Patton”). Applicants respectfully traverse the rejection.

Applicants have canceled claim 25 without prejudice or disclaimer, thereby rendering the rejection of the claim moot. Withdrawal of the rejection of claim 25 is, therefore, respectfully requested.

Applicants also respectfully submit that Zweig and Patton, either alone or in combination, do not render claims 51, 53, 55, and 59 obvious. Claims 51, 53, 55, and 59 depend from claims 1, 42, 49, and 57, respectively. The methods recited in claims 1, 42, and 49 employ a biological membrane directly deposited to a coating of an amine-presenting molecule, and the method recited in claim 57 employs biological membranes directly deposited to a surface coated with an amine-presenting molecule or a silane. Neither Zweig nor Patton describes or suggests these features. Accordingly, Zweig and Patton, either alone or in combination, do not teach or suggest each and every element of claims 51, 53, 55, or 59. Therefore, Applicants respectfully submit that Zweig and Patton do not render obvious claims 51, 53, 55, and 59. See MPEP §2143.03 (“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.”).

Moreover, Applicants respectfully submit that the Office Action has failed to establish a motivation to combine Zweig and Patton. The Federal Circuit has repeatedly emphasized that evidence of a motivation to combine must accompany a challenge based on multiple references. See In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999) and ATD Corp. v. Lydall, Inc., 159 F.3d 534 (Fed. Cir. 1998). See also MPEP §2143.01 (The prior art must suggest the desirability of the claimed invention). A statement that combination of the prior art to meet the claimed invention would have been within the ordinary skill in the art is not alone sufficient to establish a *prima facie* case of obviousness. See MPEP §2143.01.

Claim Rejections Under 35 U.S.C. §103(a)

On page 7, the Office Action rejects claim 25 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,699,719 (“Yamazaki”) in view of U.S. Patent No. 4,993,285 (“Patton”). Applicants respectfully traverse the rejection.

Applicants have canceled claim 25 without prejudice or disclaimer, thereby rendering the rejection of the claim moot. Withdrawal of the rejection of claim 25 is, therefore, respectfully requested.

Applicants also respectfully submit that Yamazaki and Patton, either alone or in combination, do not render claims 51, 53, 55, and 59 obvious. As discussed above, claims 51, 53, 55, and 59 depend from claims 1, 42, 49, and 57, respectively. The methods recited in claims 1, 42, and 49 employ a biological membrane directly deposited to a coating of an amine-presenting molecule, and the method recited in claim 57 employs biological membranes directly deposited to a surface coated with an amine-presenting molecule or a silane. Neither Yamazaki nor Patton describes or suggests these features. Accordingly, Yamazaki and Patton, either alone or in combination, do not teach or suggest each and every element of claims 51, 53, 55, or 59. Therefore, Applicants respectfully submit that Yamazaki and Patton do not render obvious claims 51, 53, 55, and 59. See MPEP §2143.03 (“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.”).

Moreover, Applicants respectfully submit that the Office Action has failed to establish a motivation to combine Yamazaki and Patton. The Federal Circuit has repeatedly emphasized that evidence of a motivation to combine must accompany a challenge based on multiple references. See *In re Dembicak*, 175 F.3d 994 (Fed. Cir. 1999) and *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534 (Fed. Cir. 1998). See also MPEP §2143.01 (The prior art must suggest the desirability of the claimed invention). A statement that combination of the prior art to meet the claimed invention would have been within the ordinary skill in the art is not alone sufficient to establish a *prima facie* case of obviousness. See MPEP §2143.01.

Claim Rejections Under 35 U.S.C. §103(a)

On pages 7-8, the Office Action rejects claim 26 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,790,632 (“Zweig”) in view of U.S. Patent No. 6,150,103 (hereinafter “Ness”). Applicants respectfully traverse the rejection.

Applicants have canceled claim 26 without prejudice or disclaimer, thereby rendering the rejection of the claim moot. Withdrawal of the rejection of claim 26 is, therefore, respectfully requested.

Applicants also respectfully submit that Zweig and Ness, either alone or in combination, do not render claims 52, 54, 56, and 59 obvious. Claims 52, 54, 56, and 59 depend from claims 1, 42, 49, and 57, respectively. As noted, the methods recited in claims 1, 42, and 49 employ a biological membrane directly deposited to a coating of an amine-presenting molecule, and the method recited in claim 57 employs biological membranes directly deposited to a surface coated with an amine-presenting molecule or a silane. Neither Zweig nor Ness describes or suggests these features. Accordingly, Zweig and Ness, either alone or in combination, do not teach or suggest each and every element of claims 52, 54, 56, and 59. Therefore, Applicants respectfully submit that Zweig and Ness do not render obvious claims 52, 54, 56, and 59. See MPEP §2143.03 (“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.”).

Moreover, Applicants respectfully submit that the Office Action has failed to establish a motivation to combine Zweig and Ness. The Federal Circuit has repeatedly emphasized that evidence of a motivation to combine must accompany a challenge based on multiple references. See In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999) and ATD Corp. v. Lydall, Inc., 159 F.3d 534 (Fed. Cir. 1998). See also MPEP §2143.01 (The prior art must suggest the desirability of the claimed invention). A statement that combination of the prior art to meet the claimed invention would have been within the ordinary skill in the art is not alone sufficient to establish a *prima facie* case of obviousness. See MPEP §2143.01.

Claim Rejections Under 35 U.S.C. §103(a)

On pages 8-9, the Office Action rejects claim 26 under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,699,719 (“Yamazaki”) in view of U.S. Patent No. 6,150,103 (“Ness”). Applicants respectfully traverse the rejection.

Applicants have canceled claim 26 without prejudice or disclaimer, thereby rendering the rejection of the claim moot. Withdrawal of the rejection of claim 26 is, therefore, respectfully requested.

Applicants also respectfully submit that Yamazaki and Ness, either alone or in combination, do not render claims 52, 54, 56, and 59 obvious. Claims 52, 54, 56, and 59 depend from claims 1, 42, 49, and 57, respectively. As noted, the methods recited in claims 1,

42, and 49 employ a biological membrane directly deposited to a coating of an amine-presenting molecule, and the method recited in claim 57 employs biological membranes directly deposited to a surface coated with an amine-presenting molecule or a silane. Neither Yamazaki nor Ness describes or suggests this feature. Accordingly, Yamazaki and Ness, either alone or in combination, do not teach or suggest each and every element of claims 52, 54, 56, and 59. Therefore, Applicants respectfully submit that Yamazaki and Ness do not render obvious claims 52, 54, 56, and 59. See MPEP §2143.03 (“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.”).

Moreover, Applicants respectfully submit that the Office Action has failed to establish a motivation to combine Yamazaki and Ness. The Federal Circuit has repeatedly emphasized that evidence of a motivation to combine must accompany a challenge based on multiple references. See In re Dembicza, 175 F.3d 994 (Fed. Cir. 1999) and ATD Corp. v. Lydall, Inc., 159 F.3d 534 (Fed. Cir. 1998). See also MPEP §2143.01 (The prior art must suggest the desirability of the claimed invention). A statement that combination of the prior art to meet the claimed invention would have been within the ordinary skill in the art is not alone sufficient to establish a *prima facie* case of obviousness. See MPEP §2143.01.

CONCLUSION

Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance of the claims are earnestly solicited. Although Applicants believe that the fees paid herewith are correct, the Commissioner is hereby authorized to charge any payment deficiency or credit any overpayment to deposit account number 19-2380 referring to attorney docket number 015275-060007.

Should the Examiner believe that anything further is desired in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' attorney of record.

Respectfully submitted,

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